IN THE CLAIMS

1. **(currently amended)** A gateway apparatus which interconnects a first network and an IP network, comprising:

an encoding processing unit receiving voice data from the first network and generating encoded voice data from the received voice data;

a packet processing unit creating IP packets of the encoded voice data from the encoding processing unit and transmitting the IP packets to the IP network, the packet processing unit periodically receiving real-time transport control protocol (RTCP) packets from a second gateway apparatus via the IP networks;

a network-state estimation unit determining network-state information of the IP network based on the received RTCP packets from the packet processing unit; and

a determination unit controlling, before the transmission of the IP packets, at least the encoding of the voice data by the encoding processing unit based on the network-state information determined by the network-state estimation unit,

wherein the IP packets to be transmitted to the IP network are processed according to the network-state information indicating ~~only~~ the state of the IP network, independently of network state of other networks, and

wherein the determination unit determines a type of service value based on the received RTCP packets and transmits the type of service value to the packet processing unit to control the packetizing of the packet processing unit, and the determination unit determines a type of encoding based on the received RTCP packets and transmits the type of encoding to the encoding processing unit to control the encoding of the encoding processing unit.

2. **(canceled)**

3. (previously presented) The gateway apparatus according to claim 1, wherein the determination unit determines an option of non-voiced data compression or non-compression that is performed by the encoding processing unit, based on the network-state information of the IP network.

4. (previously presented) The gateway apparatus according to claim 1, wherein the determination unit controls the packetizing of the packet processing unit and determines a packet discarding priority level of the packet processing unit, based on the network-state information of the IP network.

5. (previously presented) The gateway apparatus according to claim 1, wherein the determination unit controls the packetizing of the packet processing unit and determines a packet transmission priority level of the packet processing unit, based on the network-state information of the IP network.

6. (previously presented) The gateway apparatus according to claim 1, wherein the network-state estimation unit determines a packet loss ratio based on the IP packets that are received from the second gateway apparatus via the IP network, and sends the packet loss ratio to the determination unit.

7. (original) The gateway apparatus according to claim 6, wherein the determination unit stores at least one reference value of the packet loss ratio, and determines a specific one of a set of predetermined control parameter levels based on the result of comparison of said at least one reference value and the packet loss ratio received from the network-state estimation unit, the set of predetermined control parameter levels being inclusive of at least one of a set

of packet discarding priority levels, a set of packet transmission priority levels, and a set of encoding type levels.

8. (previously presented) The gateway apparatus according to claim 1, wherein the network-state estimation unit determines a packet arrival time jitter based on the packets that are received from the second gateway apparatus via the IP network, and sends the packet arrival time jitter to the determination unit.

9. (original) The gateway apparatus according to claim 8, wherein the determination unit stores at least one reference value of the packet arrival time jitter, and determines a specific one of a set of predetermined control parameter levels based on the result of comparison of said at least one reference value and the packet arrival time jitter received from the network-state estimation unit, the set of predetermined control parameter levels being inclusive of at least one of a set of packet discarding priority levels, a set of packet transmission priority levels, and a set of encoding type levels.

10. (previously presented) The gateway apparatus according to claim 1, wherein the network-state estimation unit reads a TTL value from a packet that is received from the second gateway apparatus via the IP network at a start of communication, the network-state estimation unit sending the TTL value to the determination unit.

11. (previously presented) The gateway apparatus according to claim 10, wherein the determination unit stores at least one reference value of the TTL value, and determines a specific one of a set of predetermined control parameter levels based on the result of comparison of said at least one reference value and the TTL value received from the network-

state estimation unit, the set of predetermined control parameter levels being inclusive of at least one of a set of packet discarding priority levels, a set of packet transmission priority levels, and a set of encoding type levels.

12. (previously presented) The gateway apparatus according to claim 1, further comprising a network-state storage unit storing the network-state information with respect to each of a plurality of destination stations in the IP network, wherein the determination unit stores a reference value of one of a packet loss ratio and a packet arrival time jitter, and, when a call connection between the gateway apparatus and one of the plurality of destination stations is established, the determination unit determines a specific one of a set of predetermined control parameter levels based on the result of comparison of the reference value and the network-state information of said one of the plurality of destination stations read from the network-state storage unit.

13. (previously presented) The gateway apparatus according to claim 1, wherein the network-state estimation unit transmits test voice data to the second gateway apparatus via the IP network, receives test packets from the second gateway apparatus via the IP network, and determines the network-state information, including an estimated network delay and an estimated voice data quality level, based on the result of comparison of the test voice data and the test packets.

14. (previously presented) The gateway apparatus according to claim 13, wherein the network-state estimation unit compares a transmission time of the test voice data and a receiving time of the test packets, and calculates an estimated network delay of the IP

network based on the result of the comparison of the transmission time and the receiving time.

15. (previously presented) The gateway apparatus according to claim 13, wherein the network-state estimation unit determines at least one of a packet loss ratio and a packet arrival time jitter of the IP network based on the received test packets.

16. (original) The gateway apparatus according to claim 13, wherein the encoding processing unit receives the test voice data from the network-state estimation unit, and generates pulse-code-modulation encoded voice data from the received test voice data.

17. **(currently amended)** A data transmission method which is performed by a gateway apparatus including an encoding processing unit and a packet processing unit and interconnecting a first network and an IP network, the data transmission method comprising the steps of:

causing the encoding processing unit to receive voice data from the first network and generate encoded voice data from the received voice data;

causing the packet processing unit to create IP packets of the encoded voice data and transmit the IP packets to the IP network;

causing the packet processing unit to periodically receive real-time transport control protocol (RTCP) packets from a second gateway apparatus via the IP network;

determining network-state information of the IP network based on the received RTCP packets from the packet processing unit; and

controlling, before the transmission of the IP packets, at least the encoding of the voice data by the encoding processing unit based on the network-state information obtained in the determining step,

wherein the IP packets to be transmitted to the IP network are processed according to the network-state information indicating ~~only~~ the state of the IP network, independently of network state of other networks, and

wherein the controlling step includes determining a type of service value based on the received RTCP packets and transmitting the type of service value to the packet processing unit to control the packetizing of the packet processing unit, and the controlling step also includes determining a type of encoding based on the received RTCP packets and transmitting the type of encoding to the encoding processing unit to control the encoding of the encoding processing unit.

18. **(currently amended)** A communication apparatus comprising:

an encoding processing unit encoding voice data;

a packet processing unit generating packets through packetizing of the encoded voice data from the encoding processing unit so that the packets are transmitted from the communication apparatus to a second communication apparatus;

a quality level estimation unit determining a quality level based on real-time transport control protocol (RTCP) packets which are periodically received from the second communication apparatus; and

a determination unit controlling the encoding of voice data by the encoding processing unit such that, when a congestion state is detected based on the quality level determined by the quality level estimation unit, a CODEC type having a compression ratio

higher than a compression ratio of a CODEC type selected in a non-congestion state is selected for the encoding of voice data by the encoding processing unit,

wherein a change in the encoding controlled by the determination unit is informed from the communication apparatus to the second communication apparatus by using a packet generated by the packet processing unit,

wherein the determination unit determines a type of service value based on the received RTCP packets and transmits the type of service value to the packet processing unit to control the packetizing of the packet processing unit, and the determination unit determines a type of encoding based on the received RTCP packets and transmits the type of encoding to the encoding processing unit to control the encoding of the encoding processing unit.

19. (canceled)